RESEARCH PROPOSAL

SUBMITTED BY SUKAL MARDI

TOPIC: IMPACT OF LANDSLIDE ON THE ECONOMY OF RI-BHOI DISTRICT, MEGHALAYA, USING GEOSPATIAL TECHNOLOGY.

INTRODUCTION :

One of the important Natural Hazard often occurred in the Himalayan Region is **Landslide**. The word **landslide** also known as **landslip,** is a form of mass wasting that include wide range of ground movement such as rock falls, deep failure of slopes and shallow debris flow.

Landslide occurs when the slope changes from a stable to an unstable condition. A change in the stability of a slope can be caused by a number of factors, acting together or alone.

The cause of a **landslide** that has to do with the structural combination of rock, soil and vegetation, is the morphology. If a hillside has lost vegetation because of fire for instance, then the addition of water can cause erosion upping the chances for **landslide**. It's not only rain that can cause erosion but also the flowing rivers, moving glacier and crashing ocean waves play the role.

The geology or structure of the earth materials itself can also be a factor in landslide.

Finally, there are human activities that can expose slope to erosion and lead to **landslide**. Clearing land for agriculture or constructions are some of the human causes of landslide.

The Himalayas, the north-east hill experience considerable **land-slides** activities of varying intensities. The rock and debris carried by the rivers in the Himalayas cause enormous landslide in the valley. The seismic activity in the Himalayan region also results in considerable landslide movement.

The Government of India is collaborating with a wide range of Indian academic Institutions on hill research, **the Himalayan Region is considered as very high to high Incidence of landslide zone.**

The natural hazard, the **landslide** directly impact economies, agriculture, food security, water, sanitation, the environment and health in the Himalayan Region.

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GEOGRAPHICAL LOCATION OF THE STUDY AREA:

The Location of the Study Area is **RI-BHOI District** of MEGHALAYA. The Latitudinal Extension is from **25^0 15/ N to 26^0 15/** N and Longitudinal Extension is from **91^0 45/ E to 92^0 15/** E.

The **RI-BHOI** District is one of the youngest district of **Meghalaya**. The district was curved out from the erstwhile East Khasi Hills District. The RI-BHOI District covers an area of 2448 km^2.

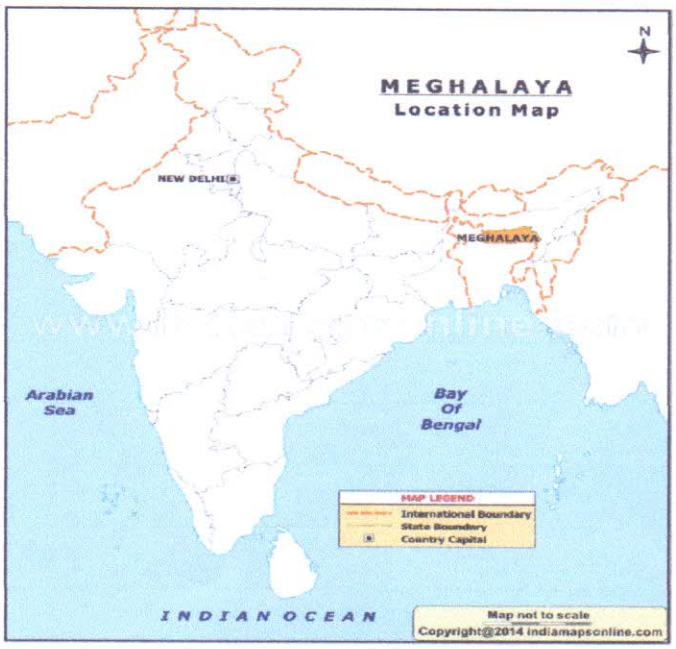
The **RI-BHOI** District is bounded on the **North** by the Kamrup, Morigoan and Nagoan district of Assam, on the **East** by the Karbi Anglong district of Assam, on the **South** by East Khasi Hills & West Khasi Hills districts and on the **West** by the West Khasi district. The district is the part of the North-Eastern Mountain Region or Purvachal. The district is characterized by rugged and irregular land surface. It includes a series of Hill Ranges which gradually sloped towards the north and finally join with the Brahmaputra valley. It is a part of the Deccan Plateau. The average height of the region is 600-1500m. The important rivers flowing through this region including Umtrew,Umsiang,Umran and Umiam rivers. All these as well as frequent earthquake of varying intensity give region to believe that the region is still unstable.

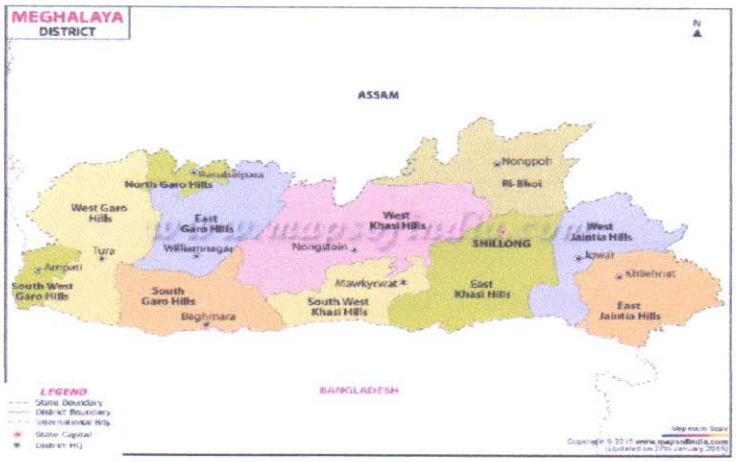
RELEVANCE OF THE STUDY AREA:

I have selected the RI-BHOI District as my research area. The District is belongs under the Khasi Hills Division. The undulating land surface, steep slope, deep valley, and many ridges are the physiographic characteristics of the region.

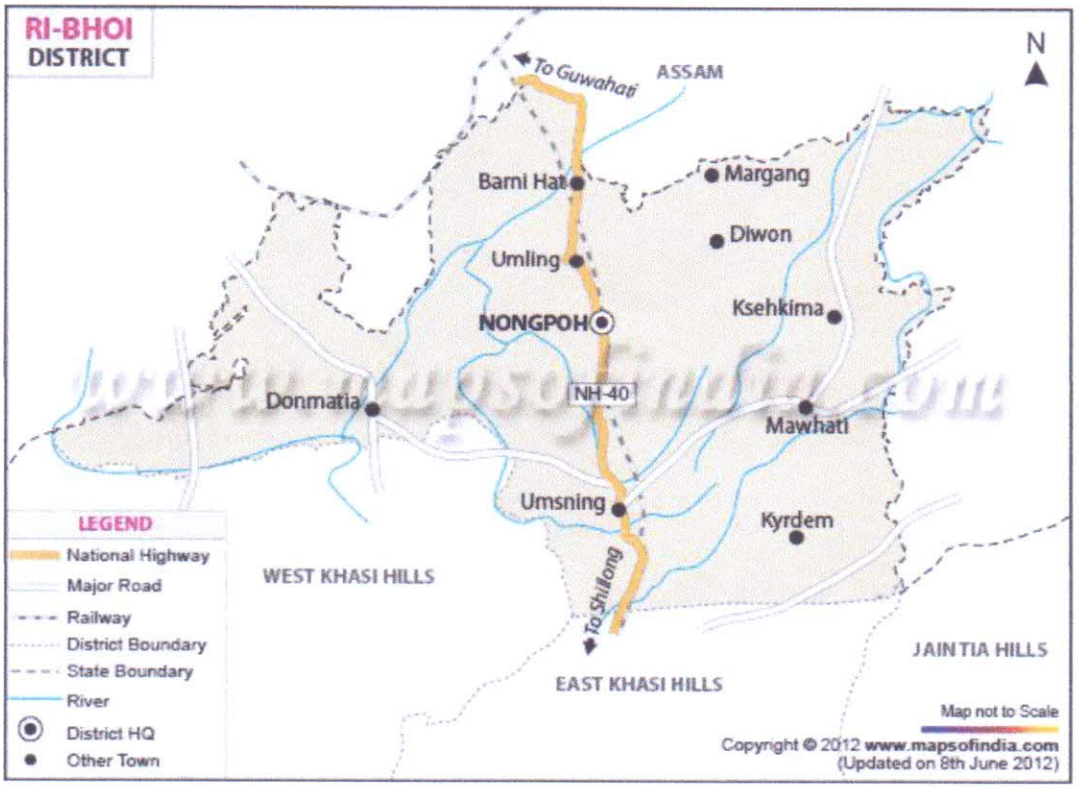
Different types of geomorphic process are acting in the region. Unplanned construction, Jhumming practices ect. have been done by local inhabitant in the region. Monsoonal heavy rainfall is the common occurrence in the region. So, the landslide is often occurring in the different parts of the region and it affects the regional development of the study area. The district is still poor in transport and communication facilities.

LOCATION MAP OF THE STUDY AREA : The RI-BHOI District, Meghalaya, INDIA





LOCATION OF THE STUDY AREA :



AIMS AND OBJECTIVES OF THE STUDY :

Objectives of any study leads the organized, systematic guideline of the theme and provides substantial degree of momentum to attain the reality. The major objectives of the study can be expressed by the following means-

i) **To identify the geological formation of the study area.**
ii) **To identify the geomorphic characteristics of the study area.**
iii) **To study the rock formation and rock properties of the research area.**
iv) **To find out the geomorphic process working on the study area.**
v) **To study the climatic characteristics of the study area.**
vi) **To identify the characteristics of the natural vegetation of the study area.**
vii) **To find out the features of Landslide occurring in the study area.**
viii) **To find out the issues related to the particular natural hazard in the study area.**
ix) **To find out the mitigate strategies related to the natural hazard.**
x) **Finally, to identify the status of regional development for the local residence of the study area.**

METHODOLOGY :

Methodology of any study is not less important as it contributes the actual stages or consequences of study properly. Generally it is divided into three stages which are as follows-

i) **Pre-Field work** : Before going to the field work, I have to prepare some hypotheses and according to these, the rule of data collection should be framing and delineated in proper ways. Related maps are to be consulted.

ii) **Field-work:** Using the Geospatial Technologies (like Remote Sensing, GPS & GIS), different types of data should be collected from the field survey and identification of different characteristics of different zone of the study area are done here.

iii) .**Post- field work** – Collected primary data should be comparison with existing records. Then finally the data are going to process and then these data are represented in proper mapping process for create the final report.

HYPOTHESIS :

i) The study area is earth-quake prone area.
ii) The study area is under the different geomorphic processes.
iii) The rock formation of the study area is fragile in nature.
iv) The study area has experienced heavy rainfall.
v) Deforestation occurs in the study area.
vi) Unplanned settlement buildup in the study area.
vii) Landslide is the common natural hazard in the area.
viii) Environmental degradation gradually occurs in the area.
ix) Daily life was often stopped by the landslide.
x) Development strategies are not enough in the study area.

TENTATIVE CHAPTERS

CHAPTER 1. INTRODUCTION

CHAPTER 2. GEOLOGY AND TECTONIC BACKGROUND

CHAPTER 3.CLIMATE AND GEOMORPHIC PROCESSES

CHAPTER 4. RELIEF AND DRAINAGE ANALYSIS

CHAPTER 5. IDENTIFICATION OF LANDSLIDE TYPES, CAUSES AND GENESIS

CHAPTER 6. IMPACT OF LANDSLIDE ON THE STUDY AREA

CHAPTER 7. PROBLEMS DUE TO LANDSLIDES AND PLANNING OF THE STUDY AREA FOR REGIONAL DEVELOPMENT

CHAPTER 8. CONCLUSION

CHAPTER 9. BIBLIOGRAPHY

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